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(54) **PRODUCTION OF FUNCTIONAL SILICON MATERIAL**

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a new technique for synthesizing a functional silicon material such as silicon nanotubes, silicon fullerenes, hollow onion-like silicon, hollow onion-like silicon containing a metal or the like in a high yield and in a high purity.

SOLUTION: This method for producing a functional silicon material comprising at least one kind of silicon nanotubes, silicon fullerenes, hollow onion-like silicon

and hollow onion-like silicon containing a metal comprises irradiating and reacting a polysilane material containing at least one kind of Si=Si bonds and Si≡Si bonds with at least one of light, electron beams and ion beams, heating and reacting the polysilane material containing at least one kind of Si=Si bonds and Si≡Si bonds, or subjecting the polysilane material containing at least one kind of Si=Si bonds and Si≡Si bonds to an irradiation treatment and a heating treatment to react the material.

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